SUBJECT INDEX

ABSORPTION CROSSECTIONS
see REACTION KINETICS

AIRGLOW

daytime Ring effect, polarisation measurements, 627
deactivation and charge transfer processes in aeronomy, 363
equatorial mesospheric and F-region emissions, 4° south, 649
hydroxyl,
  nightglow and O atom concentrations, 49
  transition probabilities, 723
oxygen,
  630nm emission, deactivation of $N(^2D)$ by $O(^3P)$, 1145
  147 μm limb emission, thermospheric temperatures and atomic oxygen, 1333
  band system transition probabilities, 881
  atmospheric bands, nightglow, O atom concentrations, 49
  atmospheric bands, twilight decay characteristics, 61
profiles, statistical inference from rocket observational data, 1327

AMPTE
see SPACECRAFT

ATMOSPHERE, TERRESTRIAL

composition,
  condensable species, abundance at tropospheric cold trap, 151
  density at 800 km, from SEASAT laser range data, 1409
  ions, stratospheric, rocket borne measurement, 315
  NO, stratospheric, implications of non-LTE events for IR remote sensing, 847
  oxygen, atomic, from O_2 and OH nightglow, 49
  oxygen, atomic, from limb emission at 143 μm, 1333
  sodium, double peaked layers at high latitude, 657
  ozone, see OZONE
dynamics,
  antarctic upper atmosphere, 943
  gravity waves, TID's over Macquarie Island, 967
  tides, dissipation and upward propagation, 669
  tides, dissipation, effect of mean winds, 197
investigatory methods of remote sensing in antarctic,
  optical, 943, 955
  radio, 943
temperatures,
  mesospheric and thermospheric, MAX/EPSILON campaign, 1303
  thermospheric, oxygen 143 μm limb emission, 1333

AURORA

activity, dayside, IMF control, 1347
arcs,
  discrete, formation of, 783
  pulsating, coordinated photometer and incoherent scatter measurements, 545
electrons,
  energy, from measurement of emission ratio and altitude, 341

transport, angular dependence, 109
emission intensities, O_2^+ and N_2^+ band enhancements, 131
energy deposition over polar ionosphere during substorm, 239
lower-border comparison by two optical emission-ratio models, 1117
particle generation from Alfvén waves, 749
pulsating, association with geomagnetic giant pulsations, 1477
TV images, deduction of whistler duct dimensions, 979
X-ray spectra, interpretation of, 1053

BOOK REVIEWS

Asteroids: Their Nature and Utilization by C. Kowal; Rev., C. Cunningham, 1021
Astronomy and Astrophysics Abstracts by U.Esser et al., Rev., K.L. Bell, 1155
Astrophysical Concepts by M. Harwit; Rev., K.L. Bell, 1022
Classical Novae by M.F. Bode and A. Evans; Rev., A.J. Norton, 1155
Natural VLF Radio Waves by T. Okada and A. Iwai; Rev., L.R.O. Storey, 1021
Orbital Motion by A.E. Roy; Rev., D.G. King-Hele, 631
Satellite Astronomy by J.K. Davies; Rev., D.R. Bates, 1022
The Atmosphere of the Sun by S.J. Durrant; Rev., A.E. Kingston, 1023
Transport Properties of Ions in Gases by E.A. Mason and E.W. McDaniel; Rev., H.W. Ellis, 1023

BREMSSTRAHLUNG

auroral, interpretation of X-ray spectrum, 1053

BROMOFORM

ultraviolet absorption cross-section in temperature range 295-240K, 1127

CHLOROFLUOROETHANE

absorption cross-section in UV, potential effects on ozone layer, 105

COMETS

dirty ice, solar heating of encased dust particles, 193
Giacobini-Zinner,
  associated magnetosonic and whistler waves, 167
  pick-up ions in vicinity, test particle calculations, 1169
Halley, detection of upstream cometary ions, 517
telescopesearch for small comets near Earth, initial findings, 1185

COSMIC RAYS

semidiurnal variation, dependence on solar magnetic field, 1421

CRITICAL IONIZATION VELOCITY

experiments in space, 865

CURRENT SYSTEMS

ring current ions, pitch angle dependence of charge exchange lifetime, 1433

DISCHARGE

from high-voltage spheres in the ionosphere, model, 21

DOBSON, G.M.B.

spectrometers for total ozone measurement, historical comment, 1601
the man and his work, 1485

ELECTRIC FIELDS

Chapman-Ferraro problem, solution for ellipsoidal magnetosphere, 1037
equatorial, response to polarity of IMF, 1403

GEOMAGNETIC FIELD

activity models, comparison using SEASAT laser range data, 685
response to passage of IMF magnetic cloud, 385
pulsations, giant, association with pulsating auroral forms, 1477

GRAVITATIONAL POTENTIAL
see SPACECRAFT, orbit analysis

HYDROMAGNETIC WAVES

Alfvén
coupling with magnetosonic, ballooning-interchange instability, eigen mode analysis, 579
coupling with magnetosonic, equations and physical mechanism, 567
generator of auroral particles, 749
oscillations, monochromatic, resonance excitation in axisymmetric magnetosphere, 1095
oscillations, nonstationary, axisymmetric magnetosphere, 1109
spectrum, plasma diagnostics in magnetosphere, 1011
turbulence in polar magnetosphere, 761
ion-cyclotron, plasmasphere, scattering of thermal electrons, 1157
micropulsations,
global events, conjugate study, 253
low latitude study during 1985, 767
meridional structure from gradient measurements, 859
Pc1, spectra and simulation of, 39
Pc3-4, ionospheric and geomagnetic association, 1079
Pi2, phase and spectral power of, 1367
propagation, poleward, near the cusp, 775
ray tracing in inhomogeneous plasma, 739
ULF power measurements at separate sites, mid to low latitudes, 1385
whistlers,
associated with comet Giacobini-Zinner, 167
direction finding at night, low latitudes, China, 1047
dispersion equations, approximate solutions, 311
doppler shifts at low latitudes, 825
duct dimensions from TV auroral images, 979
frequency drift, magnetic disturbances, 269
oblique, marginal stability of, 223
propagation of, low latitude conjugate measurements, 1215
quasilinear model of parallel instability, 633
quasilongitudinal approximations in hot plasma, 295

HYDROXYL

nightglow, atomic oxygen concentrations, 49
transition probabilities, importance in airglow studies, 723

INTERPLANETARY MAGNETIC FIELD
Bz and/or AE, influence on polar cusp, satellite observations, 609
disturbance event tracked by interplanetary scintillation method, model, 73
equatorial electric field response, 1403
transfer,
momentum across magnetopause, dayside aurora, 1347
shock or magnetic cloud, effect on geomagnetic field, 385

INTERPLANETARY SPACE

dust, calibration of detector for Galileo/Ulysses space probes, 1197
neutral gas (hydrogen and helium) scattering of solar emission, flare effects, 369
pick-up ions,
from neutral ISM captures, model, 555
in vicinity of comet Giacobini-Zinner, 1169

IONOSPHERE

F-region electron energies, anisotropic distribution 1207
ion-molecule collision frequencies, ion and electron temperatures, from EISCAT radar, 211
partial reflection investigation of antarctic mesosphere, 889
ring current ions, pitch angle dependence of charge exchange lifetime, 1432
TID, over Macquarie Island during oblique CW sounder, 967
trough, mid latitude, electron temperature structure, 1453

JUPITER
corotation lag and magnetospheric energetics, 1393

LASERS
lidar, detection of double-peaked sodium layers in atmosphere, 657
SEASAT laser range data, atmospheric densities at 800 km, 1409

MAGNETOHYDRODYNAMCS
bi-Maxwellian transport equations for polar wind, 85
electrons, thermal, scattering on plasmaspheric ion-cyclotron waves, 1157
electrostatic noise, generation in magnetotail by ion-beam instability, 145
energy penetration into magnetosphere, 1317
instability,
  ion-beam acoustic, generation of noise in magnetotail, 145
  ion-cyclotron, driven by non-thermal F-region plasma, 1
open flux tube motion over dayside magnetopause, 1461
pick-up ions,
  interplanetary, from neutral ISM capture, model and relevance for LISM parameters, 555
  released from satellite, distribution in a rotating magnetosphere, 535
plasma,
  diagnostics from spectrum of Alfvén oscillations, 1011
  expansion from diverging magnetic field configurations, 987
see also HYDROMAGNETIC WAVES

MAGNETOSPHERE
cavity modes and field line resonances, mass density variations, 407
Chapman-Ferraro problem, solution for ellipsoidal magnetosphere, 1037
electric fields, a review, 899
imaging of structure and substorm processes in solar EUV light, 379
magnetopause,
  dayside, open flux tube motion, 1461
  momentum transfer, from IMF, 1347
  motions, pressure driven, response on ground, 589
magnetosheath, solar wind boundary release from AMPTE, shock like behaviour, 1227
model, with warped tail current sheet, 5
plasma redistribution during substorm growth phase, 183
plasmasheet, energetic particle acceleration, 503
plasmasphere,
  cavity resonance, from Pi2 pulsations, 1367
  electric fields and ionospheric coupling fluxes, 283
  plasma-magnetic field interaction, 987
polar, turbulence of Alfvén waves, 761
substorm,
  auroral energy deposition over polar ionosphere, 239
  expansive phase and ionospheric signatures, comment, 1149, 1153
  frequency drift of VLF emissions, 269
  main phase modelling, 525

MASS SPECTROMETRY
ion composition measurement in stratosphere, rocket borne, 315

METEORS
ETA Aquarid shower, detection by HF radar, 837
micrometeoroids, electric dipole antennae as detector, 1291
Tunguska event, simulated nuclear and aerial dynamics, 329

MODELS
diurnal atmospheric tide, effect of mean wind and dissipation, 197
fluid equations governing potential discharge between high-voltage spheres and ionosphere, 21
interplanetary disturbance event, tracked by scintillation method, 73
interplanetary pick-up ion fluxes, 555
magnetic field, with warped tail current sheet, 5

NEPTUNE
abundance of condensable species at cold trap, role of moist convection, 151

NITRIC OXIDE
stratospheric, non LTE effects, implications for IR remote sensing, 847

NITROGEN
aurora, N_2^+ band enhancemencements, 131

NOCTILUCENT CLOUDS
observations, non-correlation with polar mesospheric radar echoes, 1013

OXYGEN
atomic, concentrations from nightglow measurements, 49
emissions,
  aurora, O_2^+ band enhancements, 131
  nightglow, 49, 61

OZONE
aeronomic chemistry, 1621
AROSA 60 year total ozone record, 1587
chemistry, the kinetic and photochemical data base in atmospheric modelling, 1606
Dobson, G.M.B.
  spectrometers for total ozone measurement, historical comment, 1601
  the man and his work, 1485
global distribution, from TOMS satellite, 1555
impact on human activity, 1653
SAGE I and II measurements, an overview, 1567
satellite observations, a review, 1539
seasonal and spatial variations in stratosphere, 1509, 1525

PARTIAL REFLECTIONS
see RADIO WAVES

PROBE-PLASMA INTERACTIONS
discharge from high-voltage sphere in ionosphere, 21
plasma density, temperature and turbulence in wake of Shuttle orbiter, 1001
wake measurements in plasmasphere, theory - experiment comparisons, 873

PULSATIONS
see HYDROMAGNETIC WAVES

RADAR

EISCAT, ion-molecule collision frequencies and temperatures, 211
mesospheric echoes, non-correlation with observations of noctilucent clouds, 1013

RADIO WAVES
ducted echoes, long delayed occurrence of, 935
partial reflections in antarctic mesosphere, 889
telemetry, interactions with atmospheric plasma, 229

RAY TRACING
inhomogeneous plasma, magnetospheric implications, 739

REACTION KINETICS
absorption cross-sections,
  bromoform, UV, in temperature range 295-240K, 1127
  O_2, isotopic, in Schumann-Runge bands, 419
charge transfer, aeronomic, theoretical considerations, 363
collision frequency, ion-neutral, radar measurement of velocities, 493
critical ionization velocity experiments in space 865
deactivation,
  aeronomic, theoretical considerations, 363
  $N(^2D)$ by $O(^3P)$, and 630 nm emission, 1145

photodissociation of O_2
  frequency and transmittance in Schumann-Runge bands, 459
  predissociation in Schumann-Runge bands, 427
transition probabilities,
  hydroxyl, importance for airglow, 723
  oxygen band systems, 881

RELEASE

AMPTE, at solar wind/magnetosheath boundary, shock-like behaviour, 1227
barium, emission rate calculations, 1441

SODIUM
double-peaked layers in terrestrial atmosphere, 657

SPACECRAFT
AMPTE, solar wind/magnetosheath releases, shock-like behaviour, 1227
orbit analysis, geopotential harmonics,
  14th order, 1975-22B, 693
  15th order, Cosmos 236, 795
  15th and 30th orders, from 26 resonant orbits, 805
  29th order, Cosmos 220, 351
SEASAT, laser range data, comparison of geomagnetic activity models, 685
Shuttle, plasma density, turbulence and temperature in wake, 1001

SUN
flare effects on neutral gas glow in interplanetary space 369
magnetic field polarity, effect on semidiurnal variation of cosmic rays, 1421
radiation pressure at Venus, effect on exosphere, 1063
solar wind, streaming pattern in declining activity, 297
spectral irradiances, data diversity between 120 and 900 nm, 1249
sunspots, magnetic fields, influence on plasma outflow from coronal holes, 1027

URANUS
abundance of condensable species at cold trap, role of moist convection, 151

VENUS
contribution to zodiacal light, 1141
exosphere structure, role of solar radiation pressure, 1063
thermospheric model with super-rotation,
  formulation and numerical techniques, 701
  temperature, composition and winds, 707

ZODIACAL LIGHT
contribution from Venus, 1141

AUTHOR INDEX

Abe, T. 517, 1207, 1453
Ahn, B.-H. 239
Aikin, A. C. 97
Akasofu, S.-I. 73, 239, 379
Al'pert, Ya. L. 391
Allan, W. 407
Anderson, H. R. 109
Arnold, F. 229, 315
Atkinson, R. 1605

Baransky, L. N. 859
Basurah, H. 627
Bates, D. R. 363, 881, 1145
Baulch, D. L. 1605
Beggs, H. M. 967
Beghin, C. 749
Belokris, S. P. 859
Berthelier, A. 749
Berthelier, J. J. 749
Biel, H. A. von 889
Bilichenko, S. V. 749
Bishop, J. 1063
Borovkov, Y. E. 859
Bosqued, J. M. 609, 749
Brasseur, G. 105
Brinca, A. L. 167
Burinskaya, T. M. 145
Butcher, E. C. 967

Cerulli-Irelli, P. 767, 1385
Chapman, S. C. 1227
Chernov, A. A. 1157
Chisham, G. 1477
Chmyrev, V. M. 749
Cieślik, S. 427, 459
Clarke, D. 627, 1141
Clemesha, B. R. 649
Clilverd, M. A. 1013
Cole, K. D. 1079
Comfort, R. H. 873
Coquart, B. 1127
Cowley, S. W. H. 589, 1347, 1461
Cox, R. A. 1605
Cravens, T. E. 1169

D'Alessio, S. J. D. 329
D'Angelo, N. 1001
Davidson, G. T. 1053
Davison, S. J. 253
De Lauretis, M. 767
Demars, H. G. 85
Dubinin, E. M. 761
Dudeney, J. R. 1153
Dutsch, H. U. 1587
Dyson, P. L. 1079

Ellis, G. R. A. 935
Eras, A. 649
Escoubet, C. 609
Eselevich, V. G. 1027
Esmond, J. R. 419
Etemadi, A. 589
Eyken, A. P. van 1013

Fahr, H. J. 555, 987
Fainshtein, V. G. 1027
Falthammar, C.-G. 899
Farman, J. C. 1601
Farrugia, C. J. 589
Fedorov, E. N. 859
Feister, U. 915
Fichtner, H. 987
Fligel, D. S. 391
Forbes, J. M. 197
Francis, W. E. 1053
Freeman, D. E. 419
Freeman, M. P. 589
Friedman, R. S. 419
Fujimoto, K. 1421

Galperin, Yu. I. 749
Garcia-Alvarez, E. 49
Gattinger, R. L. 131
Gernandt, H. 915
Gillotay, D. 105, 1127
Glode, P. 915
Gokhberg, M. B. 859
Goldberg, R. A. 657
Goldstone, G. T. 935

Goller, J. R. 1197
Golovchanskaya, I. V. 783
Gorbachev, O. A. 1157
Gorney, D. J. 239
Green, C. A. 859
Grun, E. 1197
Gruntman, M. A. 369
Guglielmi, A. V. 1011

Hampson, R. F., Jr. 1605
Hansen, H. J. 979
Hanumath Sastri, J. 1403
Harms, A. A. 329
Harris, I. 701, 707
Hayakawa, M. 269, 1047
Hendry, M. A. 1141
Higuchi, T. 1327
Hines, C. O. 669
Hunten, D. M. 151
Huuskonen, A. 211, 493
Hwang, K. S. 873

Jacka, F. 943
Jalonen, L. 493
Jenouvrier, A. 1127
Jorjio, N. V. 749

Kaila, K. U. 341, 545, 1117
Kamide, Y. 239
Kan, J. R. 239
Kaye, J. A. 847
Kelly, J. 131
Kendig, D. J. 97
Kennes, R. 427, 459
Kerr, J. A. 1605
Khazanov, G. V. 1157
King-Hele, D. G. 805
Kita, K. 1327
Komle, N. I. 193
Konikov, Yu. V. 1157
Konno, I. 517
Kovrazhkin, R. A. 749
Kroehl, H. W. 239
Krueger, A. J. 1555

Lai, S. T. 865
Lanchester, B. S. 493
Lanzerotti, L. J. 1317, 1385
Larsen, J. C. 1567
Lee, L.-H. 73
Lemaire, J. 1291
Leonovich, A. S. 1095, 1109
Lesceux, J. M. 1291
Liu, W. W. 1393
Lobo, R. M. 649
Lockwood, M. 589, 1347
London, J. 1509, 1527
Lopez-Gonzalez, M. J. 49, 61
Lopez-Moreno, J. J. 49, 61
Lopez-Valverde, M. A. 61
Lowe, R. P. 723
Lubken, F. J. 1303
Lummerzheim, D. 109
Lunine, J. I. 151
Lynn, K. J. W. 825, 1215

Ma, T.-Z. 21
Maclennan, C. G. 1317, 1385
Matsumoto, H. 167
Mayr, H. G. 701, 707
Mazur, V. A. 1095, 1109
McCormick, M. P. 1567
McDiarmid, D. R. 407
McElroy, M. B. 1653
McInnes, C. R. 1141
Medford, L. V. 1317, 1385
Meister, C.-V. 145
Mengel, J. G. 701, 707
Merienne, M. F. 1127
Meriwether, J. W., Jr. 131
Meyer-Vernet, N. 1291
Miller, A. J. 1539
Miura, A. 567, 579
Mogilevsky, M. M. 749
Molchanov, O. A. 749
Moore, P. 685, 1409
Mukherjee, G. K. 1433
Murad, E. 865
Murphy, G. B. 1001

Nagashima, K. 1421
Niciejewski, R. J. 131
Nicolet, M. 427, 1249, 1621
Nishino, M. 825, 1215
Nosaka, T. 297
Nygren, T. 493

Ogawa, T. 1327
Oguti, T. 1347
Ohta, K. 1047
Ohtani, S. 567, 579
Okuzawa, T. 517
Olson, J. V. 775
Orr, D. 253, 1367, 1477
Owen, C. J. 1461
Oyama, K.-I. 517, 1207, 1453

Parkinson, W. H. 419
Paschalidis, N. 503
Pavlos, G. P. 503
Perliski, L. M. 1509, 1527
Peters, G. 915
Pfeilsticker, K. 229, 315
Pickett, J. S. 1001
Pudovkin, M. I. 783

Rajaram, R. 1433
Rangarajan, G. K. 385
Rasinkangas, R. A. 545, 1117
Rees, M. H. 109, 955
Rishbeth, H. 1013
Robinson, R. M. 1053
Rodger, A. S. 1153
Rodrigo, R. 49, 61
Rostoker, G. 1149
Rothwell, D. A. 685, 1409
Rucinski, D. 555
Russell, C. T. 1317

Sahai, Y. 649
Salawitch, R. J. 1653
Samir, U. 873
Sandholt, P. E. 1347
Sarris, E. T. 503
Saxton, J. M. 283
Sazhin, S. S. 223, 295, 311, 633, 739
Schunk, R. W. 21, 85
Scourfield, M. W. J. 979
Sharma, R. D. 1333
Shimakura, S. 1047
Simon, P. C. 105, 1127
Simonich, D. M. 649
Singh, N. 873
Smith, A. J. 283
Smith, E. J. 167
Smith, H. J. P. 97
Smith, R. W. 379
Solomon, S. 1527
Southwood, D. J. 589
Staehelin, J. 1587
Stegman, J. 657
Stenbaek-Nielsen, H. C. 1441
Stevens-Rayburn, D. R. 701, 707
Stone, N. H. 873
Strangeways, H. J. 739
Summers, D. 535
Suvanto, K. 1
Swift, D. W. 379
Swinerd, G. G. 693

Takahashi, H. 649
Tamao, T. 567, 579
Tanaka, Y. 825, 1215
Tang, C. C. 1047
Taylor, M. J. 1013, 1477
Tedd, B. L. 1079
Teixeira, N. R. 649
Thees, B. 915
Thomas, R. M. 837
Thorne, R. M. 167, 535
Tian, M. 1047
Tribble, A. C. 1001
Troe, J. 1605
Tsurutani, B. T. 167
Tsyganenko, N. A. 5, 183, 1037
Turnbull, D. N. 723
Turunen, T. 1117

Uberoi, C. 1317
Ulamec, S. 193

Valladares, C. E. 131
Vallance Jones, A. 131
Veiga, R. E. 1567
Vellante, M. 767, 1385
Villante, U. 767, 1385
Vincent, R. A. 197, 943
Volokitin, A. S. 761
Vondrak, R. R. 1053

Walker, D. M. C. 351, 805
Walker, S. 223
Walshaw, C. D. 1485
Walt, M. 1053
Wang, P. H. 1567
Watanabe, S. 1207, 1453
Wickwar, V. B. 131
Winterbottom, A. N. 795
Witt, G. 657, 1013
Witt, N. 1013
Wodnicka, E. B. 525
Wolfe, A. 1317, 1385

Xu, J. S. 1047

Yaroslavtsev, A. A. 391
Yeates, C. M. 1185
Yeoman, T. K. 1367
Yoshino, K. 419

Zachor, A. S. 1333
Zahn, U. von 657, 1303
Zawodny, J. M. 1567